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April 28, 2017

Mr. Franklin D. Wallace, Executive Secretary
Caryville-Jacksboro Utilities Commission
P.O. Box 121
Jacksboro, TN 37757

Re: Compliance Evaluation Inspection
NPDES Permit No. TN0026263
Caryville-Jacksboro Utilities Commission WWTP
Campbell County

Dear Mr. Wallace:

On September 1, 2016, I conducted a Compliance Evaluation Inspection (CEI) at the Caryville-Jacksboro Utilities Commission WWTP to assess compliance with the requirements of NPDES Permit No. TN0026263. The collection system was not covered during this inspection but will be evaluated during a separate inspection later this year.

Mr. Steve Elkins, Mr. Earl Wilson, and Mr. Greg Smith were very helpful and able to provide the needed information to conduct the inspection. I appreciate their fine work and your support that leads to the continued excellent effluent quality at the wastewater plant.

CJUC is also to be commended for succession planning, since Mr. Smith was already well into his training to be the biosolids and pretreatment coordinator and has been able to benefit from Mr. Wilson's considerable expertise and experience before he retires.

The CEI report is attached. Please contact me at (865)594-5525, or natalie.harris@tn.gov if you have any comments or questions.

Sincerely,

Natalie R. Harris

Natalie R. Harris
Environmental Consultant
Division of Water Resources – Knoxville Field Office

e-copy: Steve Elkins, Earl Wilson, and Greg Smith, CJUC WWTP, c/o
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Compliance & Enforcement Unit, Division of Water Resources
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COMPLIANCE EVALUATION INSPECTION

NPDES Permit No. TN0026263
Caryville-Jacksboro Utilities Commission WWTP
September 1, 2016

1. Introduction

On September 1, 2016, Natalie Harris with the Division of Water Resources (DWR) conducted a Compliance Evaluation Inspection (CEI) of the Caryville-Jacksboro Wastewater Treatment Plant (WWTP) located at 450 Queener Road, Caryville, Campbell County, Tennessee. Steve Elkins, Certified Operator-in-Charge (Grade IV), Earl Wilson, Biosolids and Pretreatment Coordinator, and Greg Smith, Laboratory Technician, represented the facility. Mr. Smith was also in training for the biosolids and pretreatment programs.

The purpose of the inspection was to determine compliance with the requirements of NPDES Permit No. TN0026263. The period of record evaluated was from May 2014, the date of the last inspection, through August 2016.

2. Permit

NPDES Permit No. TN0026263 was issued July 1, 2014, with an effective date of August 1, 2014. It expires July 30, 2019. It authorizes the discharge of treated wastewater via Outfall 001 to the Cove Creek Embayment of Norris Lake at mile 15.9.

3. Site Review / Operations & Maintenance

The wastewater facility is an activated sludge plant with chlorination, de-chlorination and post-aeration. The design flow is 0.86 MGD, per the permit, with a 25% industrial contribution. The operator advised that the plant can actually handle 2.2 MGD. A grant was received last year for engineering design work on a plant upgrade to 5.0 – 5.5 MGD. A portion of the work has been completed, but a schedule to complete the upgrade is not definite at this time. (Update: Frank Wallace, CJUC Executive Secretary, confirmed that five industries have expanded or are in progress of doing so, and additional capacity is needed for their domestic wastewater. There is also an additional load expected eventually from a planned 1800-acre residential development. Mr. Wallace also emphasized that flow reduction from sewer rehabilitation work will be taken into account, prior to incremental modifications in the wastewater plant, to avoid creating excess capacity.)

A magnetic flowmeter (in-line “mag meter”) measures influent flow and had been calibrated by Southeastern Control Services July 6, 2016.

An original grit chamber, with a 30-year old comminutor, is on top of the office/laboratory building. A metal plate covers the grit chamber, and a carbon filter (updated 8/6/16) and a Calgon deodorizer were being used, all for successful odor control. (Update: Just recently the

All of this work was done under the same ARC grant that funded the RAS pumps.

CJUC is to be commended for having an energy use evaluation done by Allen Borders of TVA and Bob Freeman of EPA. Sequencing of the aerators and pumps were two of several energy- and cost-saving measures adopted. (*Tennessee Utility News*, TAUD; 4th Quarter 2016, Vol. 30; p.19)

The plant has a back-up generator for power outages.

It should also be noted that CJUC will take wastewater pumped from marina holding tanks. This is appreciated since it provides a proper disposal mechanism for this type wastewater and helps to keep it out of Norris Lake. Since a pumper truck can bring in 1000 gallons of wastewater with an ammonia concentration of 600-1000 mg/l, CJUC operators are careful to restrict the volume to what they can safely handle at the plant. If too many loads come in at once, they are routed on to other area wastewater plants. CJUC has a specific dump station where pumper trucks are allowed to discharge. CJUC staff first sample the wastewater themselves for ammonia and pH. Every load is recorded.

The operators work 7 AM – 3 PM or 7 AM – 4 PM, and one performs necessary functions on Saturday and the other covers Sunday. In addition, the CJUC water treatment plant staff who are on duty during the evenings also check on the wastewater plant. Video cameras send photos of various unit operations and monitoring devices to wastewater staff's smart phones and laptop (via an Apple app) to alert them of any problems that need attention at the plant during off-hours.

4. Sampling and Field Testing

Samples are being taken for the required parameters at the required frequencies. Sampling locations are representative.

a) Dissolved oxygen (DO)

The operator measures DO at the end of the step aeration cascade with a Hach Model HQ40d meter with a rugged LDO probe. This meter utilizes an EPA-approved methodology. The outfall line from the plant to the embayment is estimated to be around 200 ft – 300 ft long. Therefore, dissolved oxygen samples do not have to be taken at the end of the line; this is only applicable if an outfall line is a mile or more in length.

b) Total Residual Chlorine and E. coli

Manual grab samples are taken for chlorine after required dechlorination, but before the step aeration unit, which is conservative. Samples are also taken at this location for *E. coli*. Samples are taken back to the lab, and operators are aware chlorine must be run within the required 15-minute holding time.

c) Ammonia and pH

6. Effluent

No effluent violations had been reported on the DMR's for the period May 2014 through August 2016. This is an exemplary track record.

Final effluent after post-aeration looked clear.

7. Receiving Stream

The proper NPDES sign was posted at the receiving stream (Cove Creek Embayment of Norris Lake).

The outfall line discharges to the middle of the channel. No foam or floating solids were observed. An observation as to oil sheen could not be made due to distance, but based on the effluent quality after the final treatment units, none would be expected.

The WWTP is located in a high-use recreational area with lakeside residences. The receiving stream is voluntarily monitored three times per week for several parameters, which provides information for CJUC to use when answering citizen inquiries. The data is entered into the WWTP's database and reported on the MOR's. Samples are taken from the streambank, since a boat would be required to actually go out mid-channel to take samples in the embayment at the end of the outfall line. An effort is made to go 200 ft – 300 ft downstream of the outfall line when the water is not up too far. For 2014 – 2016 the upstream and downstream dissolved oxygen varied only slightly (a delta of around 0.2 mg/l) and occasionally is actually better downstream. All values were considerably above the stream criteria. Additionally, no significant increases in ammonia were measured downstream of the outfall line.

Prior water quality assessments by DWR and TVA have shown that Norris Reservoir does not meet the recreational standard (based on fish consumption) for mercury. Repeated testing by a very sensitive test for the pretreatment semi-annual report (and for NPDES permit renewal) has shown that the WWTP is not the cause of this condition.

8. Records and Reports

Records are very organized, and the required three years of monitoring documentation were available for review. (In fact, the operators were able to pull records instantaneously to answer a variety of questions.) Data from laboratory bench sheets are transferred to the Visual FoxPro database for generating daily plant control values and the MOR and DMR values. This is an excellent tool.

a) DMR's

A spot-check of records was conducted for three randomly selected months representing three seasons. Winter - December 2014: There were no transcription errors for 12/8/14 and 12/22/14. Summer - June 2015: For 6/10/15, all data was correctly transcribed. However, an extra test had not been included. Any values from additional testing by

Notice of Coverage TNB026263 has been issued by the Division of Water Resources to the CJUC WWTP, as the generator, for biosolids land application under the relevant general permit. There are five land application sites currently approved: Rice Farm #1 (all 3 fields), Wood Farm, and Claiborne Farm. The Claiborne Farm is no longer being used.

A Notice of Intent (NOI) to be covered under the general permit is pending for Rice Farm #2. CJUC is aware a revised NOI will have to be submitted to identify discrete parcels within the larger acreage, before any of the fields can be approved and used.

According to CJUC records, the annual 503 biosolids report for 2014 was submitted digitally to the DWR statewide biosolids coordinator on February 10, 2015, and the report for 2015 was submitted digitally on February 9, 2016, in compliance with the annual February 19 due date. (Update: The most recent report for 2016 was submitted and received by the DWR biosolids program on February 7, 2017.)

10. Collection System

No overflows in the collection system were reported during the May 2014 – August 2016 period, which is very impressive. However, there is excess flow from infiltration which reaches the plant, and work has been underway for some time to reduce the amount. More work is planned in the near future for the Dog Creek basin.

The collection system and its management system were not evaluated during this inspection. A separate sanitary sewer overflow (SSO) inspection will be done later. (It is tentatively scheduled for August 2017.)

11. Conclusion

The CJUC WWTP is professionally operated and is consistently in compliance with its NPDES permit. CJUC and its staff are to be commended.